

CLAIMS

1. An electrode material, wherein a solid piece that has a magnitude of 5 to 60 mm is coated with electrically conductive diamond.

2. The electrode material according to claim 1, wherein a thickness of a coating of the electrically conductive diamond is 2 to 20 μm .

3. The electrode material according to claim 1, wherein the solid piece is a block object or a linear object.

4. The electrode material according to claim 3, wherein the block object comprises at least one selected from a group consisting of a particulate object, a beads-like object, a spherical object and a hornlike object.

5. The electrode material according to claim 3, wherein the linear object comprises at least one selected from a group consisting of a fiber-like object, a string-like object, a steel-like object, a cord-like object and a bar-like object.

6. The electrode material according to claim 1, wherein the solid piece comprises at least one selected from a group consisting of molybdenum, niobium, iridium, rhenium, tantalum, tungsten and silicon.

7. An electrode material assemblage comprising at least two of the electrode materials according to claims 1,

wherein one electrode material is in contact with at least one of other electrode materials.

8. An electrode comprising an electrode material assemblage according to claim 7.

9. An electrode, wherein the electrode material assemblage according to claim 7 is supported by a support.

10. The electrode according to claim 9, wherein the support is electrically conductive.

11. An electrode comprising:

(1) an electrically conductive substrate;

(2) a covering layer covering the electrically conductive substrate; and

(3) electrically conductive diamond particles fixed to the covering layer, wherein each of the electrically conductive diamond particles is partially brought into contact with the electrically conductive substrate and another portion of the each of the electrically conductive diamond particles is partially exposed on a surface of the covering layer.

12. The electrode according to claim 11, wherein the covering layer is made of an insulating material.

13. The electrode according to claim 11, wherein the covering layer is made of an organic polymer and/or an inorganic material.

14. The electrode according to claim 13, wherein

the organic polymer is plastics and/or rubber.

15. The electrode according to claim 13, wherein the inorganic material is at least one selected from a group consisting of ceramics, cement and glass.

16. The electrode according to claims 11, wherein electrically conductive diamond particles are manufactured by use of a low-pressure synthesis method.

17. The electrode according to claims 11, wherein the electrode is a submerged electrode that is used in liquid.

18. A liquid processor comprising an electrode according to claims 11.

19. A method of processing a liquid characterized by using the electrode according to claims 11.

20. A method of manufacturing an electrode comprising:

(1) forming a covering layer on a surface of an electrically conductive material;

(2) placing electrically conductive diamond particles on the covering layer;

(3) bringing the electrically conductive diamond particles into contact with an electrically conductive substrate: and

(4) curing the covering layer to fix the electrically conductive diamond particles to the covering

layer.

21. The method according to claim 20, wherein the covering layer is made of a thermoplastic resin and/or a thermoplastic elastomer, the step (3) is carried out by raising a temperature, and the step (4) is carried out by lowering a temperature.

22. The method according to claim 20, wherein the covering layer is made of a thermosetting resin and the step (4) is carried out by raising a temperature.

23. A method of manufacturing an electrode comprising:

(1) bringing electrically conductive diamond particles into contact with an electrically conductive substrate;

(2) forming a covering layer on a surface of an electrically conductive material; and

(3) curing the covering layer to fix the electrically conductive diamond particles to the covering layer.

24. The method according to claim 23, wherein the covering layer is made of a thermoplastic resin and/or a thermoplastic elastomer, the step (3) is carried out by lowering a temperature.

25. The method according to claim 23, wherein the covering layer is made of a thermosetting resin and the

step (3) is carried out by raising a temperature.

26. An electrode material, wherein an entire side surface of a columnar or tubular substrate is coated with electrically conductive diamond.

27. The electrode material according to claim 26, wherein a thickness of the electrically conductive diamond is 0.5 μm or more.

28. The electrode material according to claim 26, wherein a thickness of the electrically conductive diamond is 1 μm or more.

29. An electrode material assemblage comprising at least two of the electrode materials according claims 26, wherein one electrode material is in electrical contact with at least one of other electrode materials.

30. An electrode comprising an electrode material according to claims 26.

31. The electrode according to claim 30, wherein the electrode is a submerged electrode that is used in liquid.

32. A liquid processor comprising an electrode according to claim 30.

33. A method of processing liquid, characterized by using the electrode according to claim 30.

34. An electrode comprising an electrode material assemblage according to claim 29.

35. The electrode according to claim 34, wherein the electrode is a submerged electrode that is used in liquid.

36. A liquid processor comprising an electrode according to claim 34.

37. A method of processing liquid, characterized by using the electrode according to claim 34.